W064: Characterization of a Large Reciprocal Chromosomal Translocation in Banana (*Musa acuminata*) and its Impact on Chromosomal Segregation using NGS

ABSTRACT

Tuesday, January 17, 2017 **10:50 AM - 11:10 AM**

Pacific Salon 6-7 (2nd Floor)

Bananas cultivars are triploid or diploid seedless parthenocarpic clones derived from the hybridization between *Musa acuminata* subspecies and, for some of them, with the species *M. balbisiana*. Based on chromosome pairing configuration in hybrids, *M. acuminata* subspecies were reported to differ by a few large chromosomal structural rearrangements which may have occurred since their divergence following geographical isolation. We analyzed with DArTseq, chromosome segregation in the progenies of a seedy *M. acuminata* banana accession and discovered strong segregation distortion, reduced recombination and abnormal linkage in two regions of references chromosomes 1 and 4. Pair-end resequencing of the parental accession and comparison to the *Musa acuminata* references sequence, showed evidence of a heterozygous reciprocal translocation involving two distal segments of 3 Mb and 10 Mb from chromosome 1 and 4. This translocation was then confirmed through BAC-FISH and PCR experiments. The two chromosome structures were found mutually exclusives in gametes and the rearranged structure was transmitted preferentially to the progeny. Analysis of the distribution of this distinct chromosome structures in Musa diversity allowed to make hypotheses about its origin.

Authors

Guillaume Martin
CIRAD, UMR AGAP

Françoise Carreel
CIRAD, UMR AGAP

Olivier Coriton
Institut National de la Recherche Agronomique (INRA

Catherine Hervouet
CIRAD, UMR AGAP

Céline Cardi
CIRAD, UMR AGAP

Danièle Roques
CIRAD, UMR AGAP

Mathieu Rouard
Bioversity International

Julie Sardos
Bioversity International

Franc-Christophe Baurens
CIRAD, UMR AGAP

Angélique D'Hont
CIRAD, UMR AGAP

Presentation - PDF file

View Related Events

Workshop: 4170 Banana Genomics

Program: Workshops

Day: Tuesday, January 17, 2017